

80 percent flow-by...

General Description of the method:

1. How does this trial balloon help the EFSAB to advise DENR in characterizing the aquatic ecology of different river basins?

The framework proposed by DWR--80 percent flow-by--is based on the flow characteristics of a particular stream generated by OASIS. The flow record reflects present water usage, referred to as Simbase. Best available knowledge gained from growth projections, proposed infrastructure expansions from Local Water Supply Plans, and water withdrawal registration would help in crafting 50-year water-use projections to evaluate future flow alterations. Statistical analysis of the flow record would provide hydrologic characteristics of the watersheds, such as average flow and baseflow, which to some degree play a role in characterizing the aquatic ecology. A surrogate for characterizing the aquatic ecology is the measure of weighted usable area (WUA) of aquatic habitat seen in the time series analyses using the PHABSIM study sites located in specific streams in the Piedmont.

2. How does this trial balloon help the EFSAB to advise DENR in identifying the flows necessary to maintain ecological integrity?

Again, the measure of weighted usable area (WUA) of aquatic habitat seen in the time series analyses using the PHABSIM study sites in piedmont streams could serve as a surrogate when evaluating deviations from prevailing conditions. The percent flow-by strategy is supported by scientific literature. The percent flow-by strategy maintains flow variability, and the expectation is that maintaining this variability, minus up to 20 percent of the volume, would maintain and support ecological integrity.

3.

(a) Limitations of this trial balloon:

As currently proposed, this framework does not have a low-flow cap, which may be viewed as a concern. Certain assumptions inherent with the utilization of PHABSIM are open to discussion (e.g., limited coverage and transferability to non-studied streams; relationship of habitat to species richness and carrying capacity). Some questions about usage may apply, such as, is the 20 percent loss applicable at each node, per reach or for a watershed or the basin; and what is considered a significant deviation from the flow-by, in terms of frequency, duration, timing and/or magnitude.

(b) Options for how to address those limitations:

Limitations could be addressed through "adaptive management" strategies based on experience gained through usage over time. Also, additional knowledge gained from additional site-specific studies.